Amendment to Specification

To response the last action of the examiner, applicant respectfully requests deletion of the amendment to the specification filed on 10 March 2003 without the addition of new subject matter. Deletions therefrom are shown in square parentheses.

Page 2, line 12 after the second paragraph insert following two paragraphs:

[The principle of the new mixing process is based on a new receptivity. The new invention uses both, new passive and active controls of fluid flow to achieve an extraordinary rapid and homogeneous mixing of fluids. The active forcing not only enhances the primary vortices due to the primary inherent instability, but also the secondary stream-wise vortices due to secondary instability mechanisms, e.g. the instability of streamwise vortices resulted from the interactions of streamwise corner vortices of corner flow leaving the trailing edge between splitter plate and the side wall, and the primary spanwise vortex.

The corner flows here mean the local flows having streamwise vorticity in the corners between two solid walls intersecting with an angle from each other. For instance, there are corner flows in the corner between a splitter plate and sidewall in a pipe if the splitter plate is placed inside the pipe and connected to the sidewall of the pipe to separate two fluid streams. When the vorticity is large in the corner flow, there is a streamwise vortex. This streamwise vortex can exists upstream and downstream of the trailing edge of the splitter plate. The streamwise vortex can be enhanced in a confined configuration and under periodic forcing in the flows with a large receptivity. The receptivity describes how much external forcing energy is absorbed by a system and converted to velocity fluctuation of a flow. The increase of the velocity fluctuation can enhance primary (spanwise) and secondary (streamwise) vortices, which in turn, enhance the mixing. The larger the receptivity is, the stronger the mixing is. The confined configuration indicates a three-dimensional flow compared to a two-dimensional flow of a larger spanwise homogeneity.]